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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,401	12/03/2003	Akihiro Yoshida	246149US2	5027

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

CHEN, CHIA WEI A

ART UNIT	PAPER NUMBER
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2622

NOTIFICATION DATE	DELIVERY MODE
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12/28/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/725,401

Applicant(s)

YOSHIDA, AKIHIRO

Examiner

Chia-Wei A. Chen

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 June 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This action is in response to the amendment dated 10/30/2007 in application 10/725401.

The minor objections to the claims have been withdrawn in light of the amendments.

Response to Arguments

2. Applicant's arguments with respect to claims 1-3 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kinba et al. (US 5,597,999) in view of Serizawa et al. (US 6,593,970 B1).

As to claim 1, Kinba et al. teaches, in figure 2, a digital camera comprising:

- a range finding sensor to measure a distance to an object (phase-difference detecting areas 1, 2, and 3 on Figs. 3 and 4);

- an imaging device configured to receive an image of the object (CCD 17);
- a focus lens configured to image the image of the object on the imaging device (imaging lens 14, col. 4, lines 4-7);
- a first focusing system of obtaining a focusing position by sampling a contrast of an object image formed on a light receiving surface with moving a focus lens along an optical axis (col. 3, lines 41-44, col. 7, lines 46-57);
- a second focusing system of obtaining the focusing position by measuring a distance to an object based on a triangular surveying system (col. 3, lines 41-44, col. 4, line 62-col. 5, line 3);
- a selection device configured to select that one of the first focusing system and the second focusing system is operative or that both of the first and second focusing systems are operative together (see flowchart, Fig. 6, col. 4, lines 18-37),
- wherein the first focusing system is configured to detect the focusing position by means of the imaging device (col. 4, lines 18-37, Fig. 6),
- wherein the second focusing system is configured to detect the focusing position by means of the range finding sensor (col. 4, lines 38-55, Fig. 7), and

but does not teach:

- an edge enhancement processing device configured to emphasize an edge component of an image signal of a photographed image obtained by photographing said object; and
- wherein when the first focusing system is selected to be operative independently by the selection device, or the first and the second focusing systems are selected to be

operative together by the selection device, a gain setting value of the edge enhancement processing device is set to be a predetermined value, and when the second focusing system is selected to be operative independently by the selection device, the gain setting value of the edge enhancement processing device is set to be larger than the predetermined value, so that the edge component is emphasized.

Serizawa et al. teaches

- an edge enhancement processing device (1100) configured to emphasize an edge component of an image signal of a photographed image obtained by photographing said object; and
- wherein when the first focusing system is selected to be operative independently by the selection device, or the first and the second focusing systems are selected to be operative together by the selection device, a gain setting value of the edge enhancement processing device is set to be a predetermined value, and when the second focusing system is selected to be operative independently by the selection device, the gain setting value of the edge enhancement processing device is set to be larger than the predetermined value, so that the edge component is emphasized (Depending on a preset exposure interval, an edge enhancement amount control signal indicates a coefficient of "1" or a coefficient of "2" to the edge enhancement multiplier; see col. 11, lines 12-17).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the edge enhancement processing device of

Serizawa et al. with the hybrid-focus digital camera of Kinba et al. to expand the dynamic range of a video signal. (See col. 1, lines 32-35 of Serizawa et al.)

2. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kinba et al. (US 5,597,999) in view of Beutter et al. (US 6,533,721 B1).

As to claim 2, Kinba et al. teaches, in figure 2, a digital camera comprising:

- a range finding sensor to measure a distance to an object (phase-difference detecting areas 1, 2, and 3 on Figs. 3 and 4);
- an imaging device configured to receive an image of the object (CCD 17);
- a focus lens configured to image the image of the object on the imaging device (imaging lens 14, col. 4, lines 4-7);
- a first focusing system of obtaining a focusing position by sampling a contrast of an object image formed on a light receiving surface with moving a focus lens along an optical axis (col. 3, lines 41-44, col. 7, lines 46-57);
- a second focusing system of obtaining the focusing position by measuring a distance to an object based on a triangular surveying system (col. 3, lines 41-44, col. 4, line 62-col. 5, line 3);
- a selection device configured to select that one of the first focusing system and the second focusing system is operative or that both of the first and second focusing systems are operative together (see flowchart, Fig. 6, col. 4, lines 18-37),

- wherein the first focusing system is configured to detect the focusing position by means of the imaging device (col. 4, lines 18-37, Fig. 6),
- wherein the second focusing system is configured to detect the focusing position by means of the range finding sensor (col. 4, lines 38-55, Fig. 7), and

but does not teach:

- an edge enhancement processing device configured to emphasize an edge component of an image signal of a photographed image obtained by photographing said object,
- wherein when the first focusing system is selected to be operative independently by the selection device, or the first and the second focusing systems are selected to be operative together by the selection device, a limit setting value of the edge enhancement processing device is set to be a predetermined value, and when the second focusing system is selected to be operative independently by the selection device, the limit setting value of the edge enhancement processing device is set to be larger than the predetermined value, so that the edge component is emphasized.

Beutter et al. teaches

- an edge enhancement processing device (33) configured to emphasize an edge component of an image signal of a photographed image obtained by photographing said object,
- wherein when the first focusing system is selected to be operative independently by the selection device, or the first and the second focusing systems are selected to be operative together by the selection device, a limit setting value of the edge

enhancement processing device is set to be a predetermined value, and when the second focusing system is selected to be operative independently by the selection device, the limit setting value of the edge enhancement processing device is set to be larger than the predetermined value, so that the edge component is emphasized (When high-frequency energy data is received and processed by the programmable logic device 409, if the high-frequency energy data is less than optimal then the enhancement level is increased. Otherwise, the reference enhancement level is used; see col. 6, lines 24-38.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the edge enhancement limit setting of Beutter et al. with the hybrid-focus digital camera of Kinba et al. so that when the focus is not at an optimal level, the enhancement value may be increased, when necessary, to compensate. Otherwise, the enhancement value is kept low when a high enhancement value is not necessary since over-enhancing introduces too much noise into the image. (See col. 3, lines 52-55 of Beutter et al.)

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kinba et al. (US 5,597,999) in view of Malkin et al. (US 6,614,474 B1).

As to claim 3, Kinba et al. teaches, in figure 2, a digital camera comprising:

- a range finding sensor to measure a distance to an object (phase-difference detecting areas 1, 2, and 3 on Figs. 3 and 4);
- an imaging device configured to receive an image of the object (CCD 17);

- a focus lens configured to image the image of the object on the imaging device (imaging lens 14, col. 4, lines 4-7);
- a first focusing system of obtaining a focusing position by sampling a contrast of an object image formed on a light receiving surface with moving a focus lens along an optical axis (col. 3, lines 41-44, col. 7, lines 46-57);
- a second focusing system of obtaining the focusing position by measuring a distance to an object based on a triangular surveying system (col. 3, lines 41-44, col. 4, line 62-col. 5, line 3);
- a selection device configured to select that one of the first focusing system and the second focusing system is operative or that both of the first and second focusing systems are operative together (see flowchart, Fig. 6, col. 4, lines 18-37),
- wherein the first focusing system is configured to detect the focusing position by means of the imaging device (col. 4, lines 18-37, Fig. 6),
- wherein the second focusing system is configured to detect the focusing position by means of the range finding sensor (col. 4, lines 38-55, Fig. 7), and

but does not teach:

- an edge enhancement processing device including a digital filter configured to enhance an edge component of an image signal of a photographed image obtained by photographing said object; and
- wherein when the first focusing system is selected to be operative independently by the selection device, or the first and the second focusing systems are selected to be

operative together by the selection device, a settling value of the digital filter of the edge enhancement processing is set to be a predetermined value, and when the second focusing system is selected to be operative independently by the selection device, the setting value of the digital filter of the edge enhancement processing device is set to be larger than the predetermined value, so that the edge component is emphasized.

Malkin et al. teaches

- an edge enhancement processing device (300) including a digital filter configured to enhance an edge component of an image signal of a photographed image obtained by photographing said object; and
- wherein when the first focusing system is selected to be operative independently by the selection device, or the first and the second focusing systems are selected to be operative together by the selection device, a setting value of the digital filter of the edge enhancement processing is set to be a predetermined value, and when the second focusing system is selected to be operative independently by the selection device, the setting value of the digital filter of the edge enhancement processing device is set to be larger than the predetermined value, so that the edge component is emphasized. (Coefficients of the digital filter are adjusted according to the mode of the camera, i.e., zoom ratio, and at high zoom ratios, the filter coefficients have a steeper slope than at a low zoom ratio. See col. 4, line 66-col. 5, line 14.)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the digital filter edge enhancement of Malkin et al.

with the hybrid-focus digital camera of Kinba et al. to provide an adaptive edge sharpening apparatus and method which sharpens an image without significantly amplifying noise. (See col. 2, lines 4-6 of Malkin et al.)


Inquiries

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chia-Wei A. Chen whose telephone number is 571-270-1707. The examiner can normally be reached on Monday - Friday, 7:30 - 17:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NgocYen Vu can be reached on (571) 272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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NGOC-YEN VU
SUPERVISORY PATENT EXAMINER